

## Message Text

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ACTION ERDA-07

INFO OCT-01 NEA-10 ISO-00 OES-07 EB-08 NSF-02 INT-05  
CIAE-00 INR-07 NSAE-00 FEAE-00 IO-14 /061 W  
-----112618 301523Z /50  
R 301155Z AUG 77  
FM AMEMBASSY NEW DELHI  
TO SECSTATE WASHDC 5729

UNCLAS NEW DELHI 12198

PASS ERDA, OES, NSF, DEPARTMENT OF INTERIOR (USGS, US BURMINES)

E.O. 11652: N/A  
TAGS: ENRG IN  
SUBJECT: INTERNATIONAL APPLICATIONS OF GEOTHERMAL ENERGY: INDIA

REF: STATE A-2873

1. THERE IS AT PRESENT NO PRODUCTION OF POWER FROM GEOTHERMAL RESOURCES IN INDIA NOR ARE ANY GEOTHERMAL SYSTEMS LIKELY TO COME ON STREAM IN THE FORESEEABLE FUTURE. THERE ARE, HOWEVER, A NUMBER OF GOI ORGANIZATIONS ENGAGED IN VARIOUS ASPECTS OF GEOTHERMAL RESEARCH AND DEVELOPMENT. THESE INCLUDE: (A) GEOLOGICAL SURVEY OF INDIA (GSI), CALCUTTA. MR. V.K.S. VARDAN IS THE DIRECTOR GENERAL; MR. B.L. JANGI IS OFFICER-IN-CHARGE, GEOTHERMAL DIVISION, GSI, NORTHERN REGION, LUCKNOW. (B) NATIONAL GEOPHYSICAL RESEARCH INSTITUTE (NGRI), HYDERABAD. DR. HARI NARAIN, DIRECTOR, IS THE HEAD OF THE INSTITUTE AND DR. MOHAN GUPTA IS HEAD OF THE GEOTHERMAL DIVISION OF THE INSTITUTE.

(C) REGIONAL RESEARCH LABORATORY (RRL), JAMMU, HEADED BY DR. ATAL, DIRECTOR.

(D) DEPARTMENT OF SCIENCE AND TECHNOLOGY HEADED BY SECRETARY DR. A. RAMACHANDRAN AND DR. J. GURURAJA IS THE DIRECTOR FOR NEW SOURCES OF ENERGY.

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(E) MINISTRY OF ENERGY: DEPARTMENT OF POWER HEADED BY SECRETARY R.V. SUBRAMANIAM AND A DIRECTOR FOR ENERGY, DR. M.K. SAMBHAMURTHI.

2. THE ONLY ASSISTANCE SO FAR RECEIVED BY THE GOI FOR DEVELOPING THE COUNTRY'S GEOTHERMAL RESOURCES HAS BEEN FROM THE UNDP. UNDP HAS UNDER ITS WING AN INDIAN GEOTHERMAL PROJECT. THE

PROJECT MANAGER IS I.M. DVOROV. TO DATE, THIS PROGRAM HAS ASSISTED THE GSI IN STUDYING THE PUGA CHUMATHAN HOT SPRING AREA IN LADAKH AND THE PRABATI VALLEY HOT SPRING REGION OF HIMACHAL PRADESH. UNDP ASSISTANCE MAY ALSO BE MADE AVAILABLE FOR AN INFRARED SURVEY OF THE WEST COAST TO IDENTIFY POTENTIAL GEOTHERMAL RESOURCES OF THE REGION.

3. WE KNOW OF NON-TECHNICAL OR TECHNICAL PROBLEMS RELATING TO GEOTHERMAL RESOURCES THAT ARE UNIQUE TO INDIA.

4. COMMENT: THE FOLLOWING COVERS SOME OF THE HIGHLIGHTS OF THE WORK NOW GOING ON IN INDIA IN GEOTHERMAL RESEARCH. AS A RESULT OF EXTENSIVE RESEARCH AND COUNTRYWIDE SURVEYS BY GSI AND THE NGRI INDIA HAS BEEN DIVIDED INTO 12 GEOTHERMAL REGIONS. AS PART OF THIS EFFORT 250 INDIAN HOT SPRINGS HAVE BEEN INVESTIGATED. BASED ON RESEARCH TODATE THE NORTH-WEST HIMALAYAN AREA APPEARS TO HAVE THE GREATEST POTENTIAL FOR GEOTHERMAL DEVELOPMEVNT. T LADAKH IN PUGA VALLEY, WHICH FORMS PART OF THIS AREA, GEOTHERMAL RESOURCES AT DEPTHS OF 100 METERS ARE CONSIDERED TO BE ECONOMICALLY VIABLE FOR GENERATING 7 TO 8 MW OF POWER. VARIOUS GOI AGENCIES ARE ASSISTING IN THE DEVELOPMENT OF THESE RESOURCES SINCE NO KNOWN FOSSIL FUELS OCCUR IN THIS REGION AND HYDRO POWER IS BOTH DIFFICULTAND

UNECONOMICAL TO DEVELOP. WELLS DRILLED AT PUGA TO DEPTHS OF 230 METERS HAVE ENCOUNTERED TEMPERATURES OF 135 DEGREES CENTIGRADE. THE CENTRAL ELECTRICITY AUTHORITY UNDER THE MINISTRY OF ENERGY IS UNCLASSIFIED

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NOW INVOLVED IN CORROSION TESTS TO DETERMINE THE PHYSICAL CHARACTERISTICS OF THESE WELLS WHILE THE REGIONAL RESEARCH LABORATORY, JAMMU, IS STUDYING WAYS FOR EXTRACTING SULFAR, BORAX, AND POTASH USING THE GEOTHERMAL RESOURCES AT LADAKH. EXPERIMENTS HAVE SHOWN THAT GEOTHERMAL ENERGY COULD BE USED FOR POULTRY FARMING, FISH BREEDING AND VEGETABLE CULTIVATION DURING LADAKH'S SUB ZERO WINTER TEMPERATURES. ALTHOUGH NOT YET FINALIZED, THE DEPARTMENT OF SCIENCE AND TECHNOLOGY HAS CONSIDERED SETTING UP VAN EXPERIMENTAL 0.5 TO 1 MW POWER PILOT PLANT AT LADAKH.

5. USING GEOTHERMAL FLUIDS OF THE MANIKARAN AREA IN HIMACHAL PRADESH THE GSI AND THE INDIAN INSTITUTE OF TECHNOLOGY IN DELHI ARE ATTEMPTING TO DEVELOP A PILOT REFRIGERATION PLANT UNDER A PROJECT FUNDED BY THE DEPARTMENT OF SCIENCE AND TECHNOLOGY.GOHEEN

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## Message Attributes

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**Channel Indicators:** n/a  
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**Enclosure:** n/a  
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**Errors:** N/A  
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**Review Markings:**  
Margaret P. Grafeld  
Declassified/Released  
US Department of State  
EO Systematic Review  
22 May 2009  
**Markings:** Margaret P. Grafeld Declassified/Released US Department of State EO Systematic Review 22 May 2009